the vaczine

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Announcements and Upcoming Events

I**mmunization Division 2016 Webcast Schedule:** The remaining quarterly webcasts hosted by the Immunization Division will be broadcast on Tuesday, April 19, Tuesday, July 19, and Tuesday, October 18. Each webcast will begin at 9:30 a.m. If you miss the live webcast, a recorded version is archived and available at http://videocenter.isdh.in.gov/videos/channel/38/recent/page1/.

CHIRP 2016 User Group Meeting (UGM) Schedule: CHIRP UGMs are currently scheduled for the following dates in 2016:

Thursday, April 21, 2016: Hamilton County Health Department, Noblesville

Thursday, June 16, 2016: Gary Police Station, Gary

Thursday, October 20, 2016: Vanderburgh County Health Department, Evansville

For more information about the UGM sessions or to register to attend, please visit https://chirp.in.gov/calendar/index.html, or contact CHIRP at chirp@isdh.in.gov or 888-227-4439.

Indiana Immunization Awards Banquet

The Immunization Division, in partnership with the Indiana Immunization Coalition, will host the first annual Indiana Immunization Awards Banquet on April 26. Join us as we honor our Best Practices and Brightest Stars of 2015! We will recognize our Immunization Award winners for immunization rates and innovative projects. Come hear Dr. Adams and Dr. Weinbaum, along with other immunization advocates, at this first annual event! Please utilize the following link to register and for more details. http://events.r20.constantcontact.com/register/event?oeidk=a07eceoczk4eb8c9b34&llr=ddu4awjab

2016 Conferences:

Indianapolis will host the 2016 National Conference for Immunization Coalitions and Partnerships on May 25-27 at the Hyatt Regency Hotel in downtown Indianapolis. More details, including the ability to register online, are available at http://healthcoalitionsconference.org/. Please contact Lisa Robertson, director of the Indiana Immunization Coalition, at 317-628-7116 or via email at director@vaccinateindiana.org with any questions.

Indianapolis will also host a CDC Pink Book training in October. The Pink Book training is a two-day, comprehensive immunization course covering immunization principles and practices, vaccine-preventable diseases and currently available immunizations. This invaluable training is presented by faculty from the CDC's National Center for Immunization and Respiratory Diseases. The training is scheduled for Wednesday, October 12, and Thursday, October 13. The course will run from 7:30 a.m. to 5 p.m. both

days and will be held at the 502 East Convention Center in Carmel. More details can be found on the Indiana Immunization Coalition's event page, including the link to register.

Call for A-Z Training Hosts: ISDH offers immunization trainings called "Immunizations A-Z". These trainings are free of charge. A full Immunizations A-Z is approximately four hours of training that covers all immunizations, signs and symptoms, vaccine-preventable diseases, state law and school requirements, as well as exemptions. This class will also cover vaccine administration and vaccine safety. Please contact the health educator in your area to arrange training.

Sharon Griffin, Districts 8, 9, 10 (Southern region), sgriffin@isdh.in.gov

Deb Doctor, Districts 2 and 3 (Northeast region), ddoctor@isdh.in.gov

Tracy Chiles, Districts 1 and 4 (Northwest region), tchiles@isdh.in.gov

Jelisa Brown, Districts 5a and 7 (Marion County and Central West region), jelibrown@isdh.in.gov

Katie Lewman, Districts 5 and 6 (Central and Central East region), klewman@isdh.in.gov

A-Z Training Schedule:

Monday, April 18: IU Health, Bloomington – Sharon Griffin

Friday, April 29: Whitley County Health Department, Columbia City – Deb Doctor

Monday, May 9: Tipton County Health Department, Tipton – Katie Lewman

Wednesday, May 11: Hamilton County Health Department, Noblesville – Katie Lewman

Refusal to Vaccinate vs. Vaccine Preventable Diseases (VPD) in the US

Deb Doctor, BSN, Health Educator

Research, examining evidence, and understanding resurgence of some diseases are important as scientists seek to explain why these diseases were once eliminated, or were at the lowest point in history, and now are not. According to *The Journal of the American Medical Association* (JAMA, 2016), there is concern that diseases such as pertussis and measles have been resurging due to various reasons, but one reason in particular could be the hesitancy of parents to vaccinate their children.

One of the ways to examine this potential issue has been to study the outbreaks of these diseases since they were either declared eliminated (measles in 2000) or review the epidemic or endemic presence since the lowest point in the U.S. (pertussis in 1977). When looking at these two diseases in particular, experts have also studied the evidence of those that have either delayed or refused vaccines for these diseases.

Key findings include:

1. Out of 18 measles studies, (1,416 measles cases) more than half of those involved (56.8%) did not have a measles vaccination.
2. Out of 970 measles cases, 574 were unvaccinated despite being vaccine eligible, and 70.6% of those 574 cases had nonmedical exemptions.
3. Among 32 pertussis outbreaks, the 5 largest statewide outbreaks had 24% to 45% of unvaccinated or under-vaccinated individuals.
4. Several outbreaks occurred in highly vaccinated populations, suggesting waning of immunity.
5. Nine reports described 12 different outbreaks of pertussis. These cases provided evidence the patient population was unimmunized. Eight out of nine reports indicated that a range of 59%-93% of people were intentionally unvaccinated.

How does this relate to public health?

It is believed that a great number of U.S. measles cases have occurred in the era after measles were declared eliminated, and there is strong evidence that intentionally unvaccinated people make up a significant portion of the cases. Even though there is evidence of issues such as waning immunity with pertussis, there is evidence that refusal to vaccinate is a contributing factor for the rise of pertussis disease. Public health officials must continue to educate and promote the administration of vaccines to prevent the spread of these and other VPD's.

Source: http://jama.jamanetwork.com/article.aspx?articleid=2503179#Abstract

How and when will we get to a Zika vaccine?

Jelisa Brown, Health Educator

How and when will we get to a Zika vaccine?

Those are the questions that are being asked. President Obama is asking Congress for a $1.8 billion emergency fund so that it can expedite the effort in developing a Zika vaccine, but even with that large amount of funding, a vaccine could still be awhile in arriving.

There are several companies that are working on vaccines to fight Zika, but the assistant director-general, Dr. Marie-Paule Kieny, from the World Health Organization said that those vaccines are 18 months away from being large-scale trials.

Vaccine development is a slow and deliberate process, and vaccines today must meet many government benchmarks before drug makers bring them to market. Years of research are conducted just to figure out what the antigen is to stop a disease.

The vaccine goes through at least three different stages after the U.S. Food and Drug Administration signs off on the early vaccine material to be tested further. This then determines things such as how big a dose is needed, the side effects, and if the vaccine works on a large group of people. So even though the government expedites vaccine trials, those tests are still ongoing, even when the vaccine is successful.

There is an epidemic with Zika, and it is unlikely it will be over anytime soon. The World Health Organization says that it is "spreading explosively" and predicts there will be 3 million to 4 million new infections in the U.S. this year.

WHO declaring Zika a public health emergency can help the company hurry development. There will be challenges, because scientists know very little about the biology of the virus. With the high rate of infection in Brazil, there are many institutes, corporations and pharmaceutical companies that are collaborating to help find a vaccine. They are also taking different approaches, which include creating a flu vaccine, or even a DNA-based vaccine. The other known approach, which is used for several vaccines already, is the "live attenuated" approach, which uses a version of the living virus that is weakened in the lab so it won't make you sick. Whatever approach scientists decide to take, a Zika vaccine will not be available anytime soon.

For more information on the Zika virus, please visit the World Health Organization or the Centers for Disease Control and Prevention:

WHO: http://www.who.int/mediacentre/factsheets/zika/en/

CDC: http://www.cdc.gov/zika/

FDA Researching Ways to Improve Vaccines for Mumps and Pertussis

Tracy Chiles, Health Educator

In a lab at the Food and Drug Administration, there are containers that are growing the bacteria for pertussis (whooping cough), as well as, the mumps virus.

The FDA researchers are looking for ways to improve these vaccines due to outbreaks in recent years. These vaccines are already safe and effective, but researchers are looking to make the vaccines even better.

Vaccines are still the best protection against diseases and their potentially serious complications. Prior to vaccines, mumps was the leading cause of viral encephalitis and sudden onset of deafness in the United States. Since 1967, there has been a 99% decrease in the nation's reported mumps cases, but sporadic outbreaks still occur. Two doses of the mumps vaccine are about 88% effective.

Pertussis is most dangerous to infants. In the last 20 years, pertussis rates have steadily increased. Vaccination is extremely important if you're pregnant because antibodies can be passed to the fetus. It is also important to have those that will have close contact to the infant vaccinated against pertussis.

Again, vaccination is still the best protection against diseases and their complications.
http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm488978.htm

Conjugate Vaccine Improvements and Safety

Katie Lewman, MPH, Health Educator

In the pre-vaccination era, the incidence rate for *Haemophilus influenzae type b* (Hib) was 40-50 per 100,000 in children under 5 years old. This rate has decreased 99% since the introduction of Hib vaccines in 1985[1]. There are five Hib vaccines licensed in the United States, and all are conjugate vaccines. Conjugate vaccines are polyribosylribitol polysaccharide (PRP) capsules chemically joined to a protein. This process is used because the polysaccharide capsule alone does not result in a strong immune response in humans. Infants are at highest risk of contracting Hib disease. They frequently have passive immunity to tetanus from their mothers, which is the reason that tetanus toxoid (TT) is used as the carrier protein for many Hib vaccines. The strength of using this type of vaccine is the immune response to the TT protein. The weakness of such conjugate vaccines is that the TT protein is not flexible and can be broken or disconnected, which lessens the vaccine's ability to stimulate an effective immune response. The TT protein is also at risk of breaking down when it is exposed to heat.

Scientists at the University of Nottingham have been researching physical aspects of Hib conjugate vaccines to find ways to maintain the stability of the TT protein and polysaccharide capsules. Abdelhameed et al. (2016) wanted to know which aspect of the Hib vaccine most affects the vaccine performance in dynamic fluid scenarios[2]. To do this, they used ultracentrifuges to test the molecular size, mass distribution and conformational flexibility of both native Hib and activated PRP capsules to the Hib-TT conjugate. The results of their findings showed flexible chain-like behavior typical of carbohydrates rather than globular proteins, which are shorter and stiffer than their carbohydrate counterparts. The length and flexibility of the polysaccharide chain is important, as it can have a protective effect by surrounding the TT, which is brittle in comparison. As well as protecting the TT structurally, the polysaccharide chain may protect the TT from potentially damaging heat by encapsulating the protein.

Abdelhameed et al.'s findings show that the carbohydrate structure in a conjugate vaccine provides a mechanical advantage with respect to vaccine stability. An additional implication of this finding includes the possible long-term stability of conjugate vaccines during normal cold chain storage transport as well as in hot climates where access to refrigeration may not be readily available[3].

Study Shows State Laws Increase Immunization Rates

Sharon Griffin, Health Educator

According to a study led by the University of Pittsburgh School of Medicine, state laws mandating health care workers receive the influenza vaccine increase vaccination rates and decrease the incidence of the flu in hospital settings. As published in the Journal of the National Medical Association, the study found vaccination rates among health care workers increased from 22.5 percent (2000-2005) to 50.9 percent (2006-2011) when 19 additional states joined Maine and New Hampshire in passing flu vaccine laws. The immunization rates climbed as more states passed laws requiring influenza vaccination among health care workers. The most current data from the 2012-2013 season show the immunization rate is even higher at 66.9 percent now that 33 states require the flu vaccine for health care personnel.

Chyongchiou Jeng Lin, associate professor in Pitt's Department of Family Medicine and the study's lead author, stated, "We're finding the higher the score, meaning the state has a law and includes components like a mandate or education, the greater the probability that the vaccination rate among health care workers will be higher."

The Advisory Committee on Immunization Practices (ACIP) recommends annual influenza vaccination for health care personnel to prevent transmission of influenza to patients and staff and to reduce staff absenteeism in the health care setting.

http://www.bizjournals.com/pittsburgh/blog/morning-edition/2016/03/pitt-study-backs-flu-vaccines-for-health-care.html

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[1] CDC (2015) The Pink Book: Course Textbook, 13th Edition. www.cdc.gov/vaccines/pubs/pinkbook/hib.html#epi

[2] Abdelhameed, A.S., Adams, G.G., Morris, G.A., Almutairi, F.M., Duvivier, P., Conrath, K., & Harding, S.E. (2016). A glycoconjugate of Haemophilus influenzae Type b capsular polysaccharide with tetanus toxoid protein: hydrodynamic properties mainly influenced by the carbohydrate. *Scientific Reports, 6*(22208), 1-11. DOI 10.1038/srep22208.

[3] University of Nottingham (2016). Improving Modern Vaccines. *Drug Discovery & Development*. www.dddmag.com/news/2016/03/improving-modern-vaccines

Updated 2016 ACIP Immunization Schedules

Cortnee Hancock, RN; Chief Nurse Consultant

The updated 2016 ACIP Immunization Schedules are now published and posted on the CDC website. The Recommended Immunization Schedule for Persons Aged 0 through 18 years has updated the order in which the vaccinations are listed to reflect the recommended age of administration. This order was also changed in the footnotes. A purple bar was added to both *Haemophilus influenzae* type b (Hib) vaccine for children aged 5–18 years, and human papillomavirus (HPV) vaccine for children aged 9–10 years, denoting the recommendations to vaccinate certain high-risk age groups for those vaccines. A new row has been added for the Meningococcal B vaccine. This row contains a purple bar denoting the recommendation for vaccination of high-risk children, and a blue bar denoting the recommendation of for vaccine administration to non-high-risk groups subject to clinical decision making. Also, Tdap/Td was added to the list of possible previous vaccines in the Tdap line for children aged 7 years and older in the Catch-up Immunization Schedule. There were also many changes in the footnotes, so please look at the footnotes carefully to note any changes.

The Recommended Adult Immunization Schedule has had four changes for the 2016 schedule from previous years. The interval for 13-valent pneumococcal conjugate vaccine (PCV13) followed by 23-valent pneumococcal polysaccharide vaccine (PPSV23) from "6 to 12 months" to "at least one year" for immunocompetent adults aged ≥65 years who do not have immunocompromising conditions, anatomical or functional asplenia, cerebrospinal fluid leak, or cochlear implants. The interval for adults aged ≥19 years with any of these conditions is at least eight weeks. The second change was that the Serogroup Meningococcal B (MenB) vaccine series should be administered to persons ages 10 years and older who are at increased risked for serogroup B meningococcal disease, as well as the recommendation to administer the MenB vaccine to adolescents and young adults aged 16-23 years to provide short-term protection against most strains of serogroup B meningococcal disease. The last change was the addition of the Nine-valent human papillomavirus (HPV) vaccine (9vHPV) to the schedule and its use for the routine vaccination of females and males against HPV. The new schedules can be found at http://www.cdc.gov/vaccines/schedules/index.html

About The VacZine

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Immunization Division

2 N. Meridian, Indianapolis, IN 46204
Phone: (800) 701-0704
Fax: (317) 233-3719
immunize@isdh.in.gov

Division Staff

Dave McCormick, *Director*

Brittney Sanders, MPH, *Deputy Director*

Paul Lucas II, MS, *CDC Public Health Advisor*

Jill King, *Director of Vaccine Operations*

Cortnee Hancock, *Chief Nurse Consultant*

Kimberly Cameron, MPH, *Assessment Epidemiologist*

Kevin McCormack, *Business Manager*

Click here for a full list of division staff

Health & Human Services Commission

Arthur Logsdon, JD, *Assistant Commissioner*

Themen Danielson, MD, MPH, *Medical Director*

Public Health Protection & Laboratory Services Commission

Joan Duwve, MD, MPH, *Senior Medical Consultant*